

The 50 MHz DX Bulletin

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The 50 MHz DX Bulletin was founded by Harry Schools KA3B. It is dedicated to the understanding and utilization of long distance propagation in the 6-meter Amateur band. The current editor and publisher, Victor Frank, K6FV, intends to publish one current issue per month along with one technical issue for each of the months missed during 1993. Subscription rates are \$20 U.S. third class mail, \$25 U.S./Canada/Mexico airmail, \$25 by surface or \$30 airmail elsewhere for 12 issues. Circulation matters and DX reports should be sent to 12450 Skyline Blvd., Woodside, CA 94062-4541 USA. If you can reach the Internet, my address there is frank@marie.sri.com. The Bulletin may be freely quoted, provided that credit is given.

Subscription Renewals

Having filled 1992, and (with this mailing) being up to February 1993, it is time to start collecting subscription payments from those of you whose subscriptions ended during 1992. Your payment for 12 issues will allow me to bump your expiration date ahead one year and eventually we'll be able to feed the current month into our mailing list program. Your subscription expiration date is on line 1 of your mailing label; EXP 9212 means your last paid issue was December 1992.

Missing Members

We have received back from the Post Office, newsletters addressed to the following subscriber. If you know of his whereabouts please inform your editor/publisher. If you are planning to move, please keep me informed; returned third class issues are expensive, \$1.28.

WB4WXE, Howard Sine, 4341 Lajes Ln FCN, McGuire Air Force Base NJ 08611-1206

We're late again!

This time it's because we were out of town on business most of three work weeks during September. It may be only two weeks during October and in November. Considering the alternatives (like unemployment), I guess we should be thankful.

I know, and you know DX is down or at least much harder to work. This publication, and your editor depend on reader feedback. You can tell where reports are thin, the southern hemisphere for instance; and most of our reports of East Coast US DX comes via Japan. Let us know what you're hearing and working. Sporadic-E, aurora, meteors, TEP, and EME reports, all are welcome to our pages.

We're also seeking material more peripheral to 6 meter DX: equipment, propagation, antennas, software, perhaps even an article on how to work Spanish-speaking DX stations. (Or find out where those Spanish-speaking stations in our 28 MHz CW band are coming from!)

Errata

In the second paragraph in column 2 of page 1 of our 1993 August issue: propagation was noted August 12 not July 12. In the second paragraph in column 1 of page 1 of our 1992 December issue: From the NC7K Report, not NC7X.

The 50 MHz Spot

VHF-UHF DXer is looking for a 50 MHz correspondent, an active 6m operator (presumably in U.K. or Europe) to take the place of Tim Kirby, G4VXE, who has been "seconded to our Toronto office for six months from September 20th." Interested parties should contact: Dave Hardy, G8ROU, Thorntree House, Wensley, Matlock, Derbyshire DE4 2LL, United Kingdom. Subscription rates by VHF-UHF DXer are £10 in the U.K., £12 in Europe, and £14 by air worldwide. Cash or Cheques/Eurocheques must be in £ (British pounds) only.

Wrong-way Auroral Scattering

Elsewhere in this issue (under Iceland) you will read about G4VXE/TF's experiences with a possibly new (to radio amateurs) scattering mode on 6m. It seems that just about every morning they could turn their beams SE and count on working European stations 1600 km and more away, not necessarily by meteor scatter. Sure, you say, just ionospheric scattering from the E layer in a region more turbulent than those of us in temperate latitudes are accustomed to.

Where this gets strange is that SM7FJE (in Vellinge, 20 km NW of SM7AED in Trelleborg) reports he could always hear them, but only when he was beaming SE as well. We'll dismiss for the moment the possibility that one or both stations may have had beams with negative front to back ratios. Tim doesn't give a city for their Iceland operation. IP24 would place them on the SE coast, where the magnetic declination is 19° W and the inclination is 75°. At Vellinge, the declination is less than 1° W and the inclination is 70°.

Cities at 70° magnetic inclination in the western hemisphere include Boston, MA; Omaha, NE; and Vancouver, B.C. Cities near 75° magnetic inclination include Goose Bay, Labrador; Sault Ste. Marie, MI; Grand Forks, ND; Regina, Sask., and Juneau, AL.

Field-aligned scatter alone would seem to be ruled out since the rays would be scattered out into space. Similarly, coupling into a field-aligned duct would seem to be ruled out because of the high elevation angles involved. I can't even explain the propagation by ion-acoustic wave scattering (pp 971-974, *Radio Science*, November 1974), as the rays would have arrived close to the expected direction, NW from Sweden. It would appear that the rays from Iceland got launched into a ground-detached mode (probably beneath the E-region over Sweden) and were scattered when the rays again entered the E-region to the SE of Sweden.

Perhaps I'm grasping at straws and should instead ask our European readers for confirmation. Did any of you hear the TF expedition from the "wrong" direction? Did any of you check to see what direction they were coming from? Was there evidence of spread Doppler or multiple tones on the Iceland signals?

The Perseids 1993

PA0HIP states on the 12th of August: The Perseid shower was good this year, except for a period between 00:30 and 04:00 UTC this morning. At that time hell broke loose!! In my many years of meteor scatter experience I never heard anything like this before. The band was practically open to all over Europe all the time. I worked 80+ stations: TF, OY, LA, SM3, 4, 5, 7, 0, OH2, 5, SP5, OZ, GM, GD, GW, GI, G, F, EH3, S5, 9A, I2, 3, 4, 6, 8, 0, YU1, 7, OK, OE2, 3, 5, 7, HB9, DL and heard stations from SP3, YO, CT, IT9, 4U1ITU, OM3, OK1, and EI.

Looking into the logs of SM7FJE and SM7AED, I must agree with Willem (PA0HIP). The band was like usual during this shower before midnight, then it was just like a continuous sporadic E, but in all directions. I have been active on MS since the late 60s and never heard anything like this on 144 or 50 MHz. I estimate that we passed through the tail of the comet between 01 and 02 UTC, perhaps the astronomers can confirm.

73 Arne - SM7AED

(See our companion 1993 February issue for more details)

News of Africa

Canary Islands: SM7AED reports the EA8SIX beacon in to his JO65 QTH August 15 at 0740. On August 8, KM1H and others in Eastern USA and Canada worked EA8BWT.

Ethiopia: ET3DX was reported being heard again on 6m on the morning of August 30, but no QSOs were made. This call is also active on HF. Meanwhile, regarding the mid-April 93 operations, Wilf DJ6TK indicates that one of the operators was Franz, DJ9ZB, while the other operator mentioned was Rudi, DK7PE, who was also QRV among 9F2CW. Who the operator Zoro was, as well as why JH1AJT was quoted as the QSL info, are still unclear. It looks like nobody has received a QSL card yet. Above information from 9H5EE who regrets not being around during good conditions to get any of this information directly.

Malawi: SM7AED reports 7Q7RM in to JO65 August 29 at 1838. The *VHF-UHF DXer* reports that 7Q7RM and 7Q7LA were widely worked on August 24, and G0DJA worked 7Q7RM on CW.

Morocco: 9H5EE passes along the information that Tarik, CN8ST, was looking for meteor scatter skeds on 6m.

Somalia: G3K0X, Nick, who is now back in England from his 60/G3K0X operations, reports that his callbook address is wrong. The correct address is: Nicholas J. Waite, 7 Lanercost Close, Welwyn Herts, England. Cards sent to the old address are picked up every few months and most do not get lost, but if you don't get your card in a few months, try the new address. Tnx 9H5EE.

South Africa: SM7AED advises that if you haven't worked ZS9 or ZS0,1, it would be a good idea to work them if they become active. The DXCC status of both Walvis Bay and Penguin Islands could come into question, should South Africa turn them over to Namibia. ZS9A: A tentative (target) date of February 28, 1994, was recently announced for Namibia to take over both Walvis Bay and the Penguin Islands.

Zimbabwe: A late report via JA1VOK's World VHF News in October 93 *Five Nine* Z23JO's best DX from May to July 1993.

Date Stations

5/8 SV1DH
5/12 DL8RM, EL9BF, EH1EH, PE1LCH, PA2VST,
PA3BFM, PA0HIP, PA0RDX
5/13 EH3AQJ, SV1DH
6/5 hrd OZ2LD
6/6 hrd 5B4CY/b, 9H1SIX/b
July No DX

News of Asia

China: JR3HED reports a Japanese team operated BT4YHY which was worked by many JAs on July 3 between 1015-1834.

Cyprus: From SM7AED's 6-meter Newsheet:

"1B Operation Absolutely Illegal Hello All, This is to bring to your notice that the present operation by 1B/DK7ZZ is absolutely illegal and QSL cards of no DXCC value. At the northern part of Cyprus there is a self proclaimed state which was created by an invasion from Turkey which still occupies this part of Cyprus with a great number of troops. This self proclaimed state is not recognized by any other country besides Turkey, the occupying country. So some amateurs with Turkish affiliations have tried to usurp and use a fictitious prefix (1B) in order to promote the pseudostate. The United Nations recognize only the government of the Republic of Cyprus which has officially been given by ITU the prefixes 5B, C4, P3 and H2. All other prefixes are absolutely illegal. 73 de Aris 5B4JE@5B4TX.CYP.MDLE C.A.R.S. Gen. Secretary. (Sept. 6, 1993)"

Interested readers may find the article "Cyprus A Time of Reckoning" in July 1993 *National Geographic* of interest. From 1878-1960, Cyprus was a British crown colony. Britain granted them independence in 1960, retaining sovereignty over its military bases Akrotiri (near Limassol) and Dhekelia (near Larnaca). With freedom came ethnic violence, resulting in UN intervention in 1964. In 1974, a military government in Greece instigated a coup against Cypriot president Archbishop Makarios II, threatening to make Cyprus part of Greece. To prevent this and to protect the Turkish Cypriots, Turkish troops invaded, sweeping past UN peacekeepers. Within a few months, some 180K Greek Cypriots fled south and 45K Turkish Cypriots moved north.

Today 600K Greek Cypriots in the south and 170K Turkish Cypriots in the north remain apart, almost never permitted to cross to the other side. The United Nations patrols a 112-mile long buffer zone separating the two factions, at a total cost of 60 million dollars a year. But the rest of the world has grown weary of supporting the peacekeeping force. By now, there may be only a skeleton UN force, as nation after nation has pulled out their soldiers, not enough to prevent an outbreak of fighting. Will this result in the two sides reaching an agreement to live peaceably together or in further bloodshed? Do you really want the DXCC countries list based on UN recognition? Is ZC4 the same country as 5B4? Or KG4 as CO? Or BV as BT? My DX buddies' rule is: "Get 'em in the log first, ask questions later!"

Hong Kong: JR3HED reports VR2HZ into JA0-7 July 11 1301-1321; VS6HYT July 17 2240 into JF1CZQ; July 18 1130 into JA1. On August 1, VR2HZ was into JA1 at 1137 and VS6HYT was into JA7WSZ at 1107. On August 7 at 1002, VS6YHT was into JA7WSZ. On August 15 at 1721, VS6FQ was into JA8RC.

JA1VOK relays a report from Brett, VS6BG of working two JA8s August 15 between 0810-0908.

Mongolia: JR3HED reports JT1KAA: July 21 1230-1333 into JA4OEY/1 and JH0HQP; July 22 1122 into JH0HQP; and July 29 1855-1915 into JA0-3;

Japan: Your editor has received Issue #42 of JR3HED's 6m News along with a couple floppy disks. JR3HED is Jun-ichi Nishihara. His address is 2-2-17. WAKABADAI, KITA-KU KOBE, HYOGO, 651-11, JAPAN. His HOME/BBS is now JF3DZC and BBS address is JR3HED@JF3DZC.27.JNET3.JPN.AS This issue starts out: "How are you? I am fine. I don't died. I have dying to be on 6m. Hi." Apparently he has been away on business which has interfered with publishing his newsletter. He mentions that the Japanese government now permits 500W output on 6m for First Class amateur radio licensees.

During June and July, no 6m propagation to the USA or Greece had been observed, despite almost daily single-hop Es openings; but on August 13 between 0745-0815 JAs worked AL7C, NL7OW and other KL7s.

What else have JAs been working on 6m (besides each other)? During the last month of the listing he sent me (7/17 - 8/17), I note Korea (HL), Hong Kong (VR2HZ, VS6HYT, & VS6FQ), Taiwan (BV), EK0LJA, Mongolia (JT1KAA), Australia, KC6IL, & JD1. The news letter also listed a number of TV signals that will be found in the indicators section.

South Korea: Besides HL9UH, who was reported into JA nearly every day between 7/17 and 8/17, JR3HED reports the following Korean stations into JA: HL1LTC, HL1MLO, HL2FCN, HL2IPC, HL2ODI, HL2OGI, HL3EEC, HL3QBJ, HL4CSL, HL4CSO, HL5JDV, HL5JJO, HL5PDJ, and HL93BUV.

Report from HL9UH for August 1993

Last month we reported HL9UH's 2m Es opening to JA on August 1 (in our companion late December 1992 issue). Perhaps not as noteworthy, but on 50 MHz, he worked JR0EYF, JE1BMJ, JA1SGX, JA1GKA, and JJ1RPJ between 0236 and 0401, and JQ3EEL at 0850.

On August 2, he reports Es to JA as early as 0845 and working JE4OFK/1 at 1030 and JH1VKL at 1102. On August 3 he reports indicators (49.75 video carrier) in as early as 0812, and JR6VIV at 0951. Besides the 49.75 signal(s), another regular in his log was JE1BMJ, with whom he held meteor/ionospheric scatter tests on 50 and 144 MHz.

August 6 0841 JA6 S9+10, 49.75 S9+30
0936 49.75 S9+
August 7 0038 49.75 S3/5, JF7RKY S9
0206 49.75 S7/9
0520 49.75 S0/2
1305 JAs S2/9 all over band
2200 JE1BMJ (m/s)
August 8 0310-0342 JMDTF, JR0IBK, JS1ODK, JA1VWV, JJ1NLR
JALGR, JALMRU, JG2HPG, JJ1FIC, 7N2OCZ
0451 JH1BSC S3/5, JG1UGD/7 S4/7 .063
August 10 1340 JE1BMJ weak residual all the time, arranges
to go back to 2m, where he works him at
1358:47 with a "BLUE WHIZZER!"
August 11 2136 JE1BMJ weak residual but copy OK
August 12 0900 49.75 meteor bursts, almost an S1/3
residual with flutter with pings & bursts
imposed. 4-5 signals noted. JA7 beacon
in on bursts also.
1039 VK6JQ 53 and 1049 VK6RJ 52
1130 49.75 S0/2, few meteors - 1 minute or so
1146 JE0CXI 50.110 on a meteor burst
1210 JA7 S0/4, 49.75 S1/3 fluttery-
strong bursts at times
1223 JMLIK 50.155 good burst w/residual
1300 Completed with JE1BMJ on 144.108
1336 JE1BMJ on 50.125 5/2 residual with few
big bursts, good copy!
2100 Few weak meteors on 49.75, started on

144.105 with JE1BMJ
2136 Heard JE1BMJ calling on 50.125, S2, he
asked Louis to continue on 2m, where they
completed at 2157
2200 JE1BMJ residual not strong, S1
2318 JA7ZMA in strongest ever heard after
antenna change.
August 14 0612 49.75 S9 to E, S5/8 to S
0835 49.75 S4/7 to E, S2/5 to S, JA6 S0/1
1300 JE1BMJ 2m MS got calls but not complete
1331 JE1BMJ 50.125 S2 weak residuals,
few S2/3 bursts.
August 15 0534-0620 JQ1VDJ, JH8PHT/1, 7M7QZJ/1, JA1MAO
August 19 1230 JA7 S3/6, 49.75 S5/7 E, JH0CHG S4/9
JH0JUY S6/9
August 21 2200 JE1BMJ 50.125 MS tests NIL heard
August 26 0849 7M2BLZ S9+, JK7 S8, JA1 ben S0/1
August 27 0842 49.75 S9+, JA7 S0/1, BV2EW S3
0950 49.75 S9+, BV2EI S3
0954 wkd BV2EI
1052 49.75 S6/8 E & S, S7/9 SE, JA7 S0/1

Lebanon: Samir, OD5SK, in KM74wk, worked 5B4AAI who was on vacation in the mountains on August 23. He also worked into France and heard the 9H1SIX beacon a few times on August 24 S2/S7. He also had SV1UN August 24 S9+30. His problem is that he finds it hard to stay in the house with 30°C and 85% relative humidity with no air conditions! The OD beacon he runs drives 3W or 8W only, but his main station runs up to 160W with his new PA. QSL via KB5RA. Tnx 9H5EE.

Asiatic Russia?: JR3HED reports that EK0LJA was into JA July 19 at 1240 on SSB. EK0LJA is Mike, UW0MF, who has come back on 6m. QSL to UW0MF callbook address (Mike Fillipov, Box 20, 690021 Vladivostok, Russia).

Taiwan: JR3HED reports the following Taiwanese stations into JA between during the past month (August): BV2AP/1, BV2DQ/1, BV2EI, BV2FI, BV2WA/1, BV6AS, BV7JA, BV8AG, BV0CJC, BV0CM, BV0DQ, BV0UHF, and BV0VHF.

Vietnam: 9H5EE passes the following from Edmond, ON1LGS (ex-3X1SG) whom he worked July 8. Edmond will be visiting Vietnam for 15 days in December 1993 and then for six months during 1994. Of course, 6m is still on his mind.

News of Europe

Austria: SM7AED reports OE9s in August 9 at 1600 and OE1ETA August 29 at 1845.

Balearic Islands: SM7AED reports EH6IF in August 8 at 0940.

Belarus: SM7AED reports EV8A in KO33 worked by meteor scatter August 13 at 1325.

More information on QSLing EV8A/UC2AA passed along by 9H5EE from PA3BFM: Tom, SP5CCC has agreed to act as maildrop for EV8A/UC2AA. Cards received will regularly be forwarded. Use SP5CCC only for 50 MHz contacts! All requests received by myself (PA3BFM) or F6AML will be forwarded to Minsk. Do not make any reference to amateur radio or Mr. V.K. Benzar on your mail to SP5CCC. Do not use fancy stamps. Let's not tempt any postal workers! SP5CCC's address is OK in any 1993 callbook.

Note that cards for UC2AAA and EV9A should be sent by F6AML as per our June 1993 issue.

"Hello to all 6m Freaks, on July 4 at 0415Z, after 26 hours of driving, we arrived very tired but also very satisfied at home. All

together we worked more than 1000 QSOs and about 32 DXCC on 6m and we are very pleased to work first OY-UC. Maybe there are some more first contacts; e.g., EH9IB, but not sure at the moment. We left some equipment in KO53 for further activity from this square. For all activity (EV5D, EV5N, EV5K, EV5WZ, and EV5DX) send QSL to DL5BAC via bureau or direct to Hans-Juergen Mueller, DL5BAC, Dorfstr.14A, D-27726 Worpswede, Germany. 73 es gd dx on the magic band of Hans, DL5BAC (EV5M, EV5D) UKSMG #1110, Klaus, DJ9YE (EV5N, EV5K), Sergej, UC2AKP (EV5DX), Sergej, UC1AWZ (EV5WZ)." Tnx 9H5EE.

Belgium: To celebrate the inauguration of His Majesty Albert II, Belgian radio amateurs may replace their "ON" prefix by using "OO" (Oscar, Oscar) from August 10 until September 30. This was communicated by ON4WF, President of U.B.A. and relayed by 9H5EE.

Bosnia-Herzegovina: SM7AED passes along the following QSL routes: Sejo Sudic, T97C and his former call 4N4JB via DL5SBA, Eberhard H Brunn, Friolzheimerstr 41, D-72287 Weissach-Flacht, Germany; T97M via DL8OBC, F J Riess, Gaertneriweg 4, D-3007 Gehrden-1, Germany. DL5SBA (@DB0CZ.#BW.DEU.EU) indicates that due to a recent increase for overseas airmail equivalent to \$1.68 U.S. you might be well advised to use the DARC QSL bureau if you are not in a hurry.

Bulgaria: SM7AED reports LY/DF1ZE worked by meteor scatter August 11 at 0928. QSL: Michael G Staff, Muhlstrasse 5, D-64579 Gernsheim, Germany.

Crete: SM7AED reports SV9ANJ in August 29 many times between 0915 and 1955. QSL via Emanuel Nerantzulis, P O Box 1272, GR-71110 Iraklion, Crete, Greece. He reports SV9SIX/b in KM25nh in August 21 at 0910, August 23 0656-0750, and August 29 many times between 0603 and 2115.

9H5EE reports that Emanuel, SV9ANJ and Nikos, SV9ANK are running 7 Watts into a horizontal dipole until a 5 el Yagi is put up. Only SV9ANJ can go on CW.

G4VXE mentions SV9ANJ being heard by G0JHC on August 15 and the SV9SIX beacon on 50010.5 getting a couple of DX cluster reports at other times.

Croatia: SM7AED reports 9A1EZA and 9A3FT by meteors August 11 at 1735. He also reports 9A2OB via Es August 29 at 1050 & 1938. See Serbia re: YU2IQ.

Czech Republic: SM7AED reports OK2GDW by meteors August 11 at 2243. He reports OK2BGW and OK2TT during August 29th Es opening.

Denmark: SM7AED reports OO4PS by meteors August 10 at 1457 and OO7YD by meteors August 11 at 1524.

England: SM7AED reports working the following via meteors during the August 10-12 Perseids shower: G0JHC, G1HJN, G1KTZ, G1OIB, G1PQJ, G1UGH, G3CCH, G3PGT, G4DCV, G4JCC, G6VZW, G7EXO, G7KXF, and G8VR. He reports hearing the GB3LER/b via aurora August 4 at 1520. Also reported were morning (around 0500) meteor scatter contacts with G3CCH on August 5, 19, & 26. He reports Sporadic-E openings on August 15 0800-1000 and G6APD at 0655; August 22 between 1104-1240 (G1IOB, G1ZXH, G2CIW, G4SEU, and G8DHA; August 23 0656 G1KTZ; and August 26 GB3LMK/b & GB3NGI/b 1000-1200.

Estonia: SM7AED reports ES5QA via aurora August 4 at 1540. Via Es he reports ES6PZ on August 29 at 0833 and ES6SIX/b (50.011 in KP37mt) August 29 at 0845 and August

30 at 1045. Dave, G0DJA reports working ES6PZ some time in late August.

Faroes Is: SM7AED reports OY9JD via meteors August 12 0436 and via Es August 26 (1000-1200) and August 29 1850.

Finland: SM7AED reports OH1AYQ and OH1SIX via aurora August 4 1520-1533. He reports OH3MF/9 in KP36 August 26 at 1350 and August 30 at 1158; OH2BC August 29 at 0945; OH5NR August 29 at 1824; OH6AH August 30 at 1136 and OH9SIX August 30 at 1230.

France: SM7AED reports a (presumably non-amateur) station on 50.100 in Bordeaux August 21 at 1000. He also reports the following by Perseids meteors: F1DVO, F1MXE, and F6BSJ. Also reported were F1GXX August 15 at 0740, F1JG August 21 at 1020 and August 30 at 0725; F5BUU August 15 at 00655; F5BYM August 14 at 1624, August 15 at 0655, and by random meteors August 27 at 0748; and F5HGT August 30 at 0745.

Maurice, F8IH (ex FA8IH) died on August 27 at the age of 85 years. He was first licensed at age 17. Tnx SM7AED. **Germany:** SM7AED reports DL5GAC August 9 at 1544 and DL3RBH via meteors August 11 at 2244.

Greece: SM7AED reports SV1SIX August 6 at 0800, August 8 at 1900, and August 9 at 1808. He reports SV1UN August 23 at 0652, but the 29th was the big day, with SV1DH at 0740 and 1812, and SV1OH at 0903.

Iceland: 9H5EE reports that TF/G4ODA was expected to be QRV on 6m from IP24 between July 29 and August 11. QSL: G4ODA, B K Tatnall, 73 Acacia Avenue, Spalding, Lincs, PE11 2LW, England.

SM7AED reports G4VXE/TF/p August 2 at 1118, August 4 at 0943 & 1257, August 5 at 0926, August 6 at 0903, August 7 at 0827, and by meteors August 10 at 1459. He reports G4ODA/TF/p via meteors August 12 at 0435.

The other side of the story, from Tim Kirby, G4VXE, writing in *VHF-UHF DXer*: "I found 50 MHz fascinating. We discovered that if we beamed southeast, every morning we would be able to work the UK, Scandinavia or perhaps Germany or Holland. Not necessarily, it seemed by meteor scatter, as often we could hear MS enhancement on the signals as well. I became used to working SM and LA stations quite regularly, but it wasn't until I looked at the computer and noticed the distance was over 1600 km that I realized they weren't exactly locals! What puzzled me even more was that SM7FJE reported he could "always hear us" but only when beaming south-east! Backscatter over that distance? Surely not! We had a couple of short sporadic-E openings and one excellent Auroral-E opening to the UK. It was unfortunate, however, that the latter opening occurred at around 0200 UK local time, so there was no one active—just the beacons at S9. Very frustrating! In total, we made over 220 QSOs on 50 MHz. Most of the QSOs were made using the call G4VXE/TF/p, but other calls were G4ODA/TF/p or G0JLF/TF/p. Some people asked why we didn't use TF/G????—you should address this question to the Icelandic PTT who have their own ideas on what the format of callsigns should be!"

Isle of Mann: SM7AED reports GD0MAN via meteors August 12 at 0125.

Ireland: SM7AED reports EI3EBB August 22 1149, EI7GL at 1232; and EI5FK August 26 1000-1200.

Italy: SM7AED reports I2ADN August 22 at 1125, I2ADN/8 in JM87 August 3 at 1712, I2WSG/4 August 22 at 1123, I4SJZ August 12 at 0521 via meteors, I5FLN August 3 at 1249, I5ZWD August 8 at 0943, I9TUS August 30 at 1638, IK0FTA August 8 at 0755, IK1LLD August 22 at 1055, IK2GSO August 9 at 1512, August 12 at 0658 via meteors, and August 15 at 0755; IK4DRY August 11 at 2246 via meteors, and IK5DHM/5 August 8 at 0956.

9H5EE reports that Angelo, I2ADN/2, was operating from JN45 in the Province of Sondrio (SO) for the 50 MHz 1993 contest organized by the Como division of A.R.I. (of Italy) which took place on July 10 and 11. 9H5EE also reports that Angelo was operating in JM87bx as I2ADN/8 from Pietra Pennata in Reggio Calabria between August 3 and August 12. Initially, he was hoping to also activate two other adjoining rare grid squares. When he saw that the QSO count was so very low due to the lack of openings, he decided to remain in JM87 hoping for better times. He often lamented about things getting monotonous due to lack of activity on six and about the unbearable 40°C+ daytime peak temperature for a few days. 9H5EE told him about the predictions and expectations for this year's Perseids meteor shower on a few bulletins on the packet network and he agreed to be QRV during the predicted peak period. Unfortunately, no QSOs were made up to the predicted peak hour, so he packed up and rested before his long journey back home. Further squares will be activated on his next holidays. Many of us should be very grateful to Angelo for activating so many of the rare grid squares in Italy. QSL: Angelo D'Anna, Via Ortigara 19, I-22070 Casnate con Bernate, Como, Italy.

Liechtenstein: HB0/HB9QQ, Pierre, in JN47tc was to have been QRV on 50.150 from 0100-0600 between September 11 and September 15. He would be operating high speed CW on 6m meteor scatter and also 144 MHz EME.

Luxembourg: SM7AED reports LX1JX and LX1SI worked via meteors August 12 0102-0117.

Madeira: CT3FQ announced himself on a packet message as QRV on 50.110 MHz USB since August 6. Tnx 9H5EE.

Malta: SM7AED reports 9H5EE August 13 at 1230, and 9H5ET August 23 at 0706, August 25 at 1119, and August 29 at 0740.

Netherlands: SM7AED reports the following via meteors between August 11 1943 and August 12 0106: PA0JHM, PA0LSB, PA2VST, PA3FYM, PE0NSE, and PE1NXV.

Northern Ireland: SM7AED reports G10SFX August 26 at 1138.

Norway: SM7AED reports LA1DXA in JP66 August 29 at 1726, and LA7SIX August 7 at 0450 by Ionospheric Scatter and August 30 at 1230 by Es.

9H5EE reports that LA/SM3JBE/p, Hasse in JP68 was intended to be QRV from Lofoten Islands between July 24 and July 28. His proposed QRG was 50.180, but listening on 50.110 in between openings. On July 27, he could have been QRV from JP67. QSL: via home call.

Poland: SM7AED reports SP5CCC August 10 at 1849 via meteors, SP6GZZ August 12 at 1630 via meteors, and SP6GZZ August 29 at 1748 via Es. QSL: Roman Futoma, ul. Scinawska 11F/6, 56-100 WOLOW, Poland. QSL for SO1NVC: Dennis Hennig, Stettiner Str. 35, O-2100 Pasewalk, Germany.

9H5EE reports the following Polish stations added to his log for the Es season past: Andy, SP3UCA in JO92df; SP3VZY in JO82lk; SP6BTI in JO81; Roman, SP6GZZ in JO81. He also reports the following. SP3CCO in JO93 is QRV on 6m. SO5ASL, Steve (G4ASL), was QRV on 6m from KO02lf for about four weeks ending mid-September. QSL: G4ASL, S.G. Ayling, 115 Winifred Road, Coulsdon, Surry, CR3 3JG, England. SP5CCC, Tom, intended to be operating and signing portable from JO84 when he was on his holidays between July 12 and July 24.

Portugal: CQ7CBI was into East Coast USA August 8. SM7AED reports CT0WW/b the 21st 1820 and 23rd at 1200.

Rhodes: SM7AED reports SV5TS in via August 29th Es opening at 1750.

Romania: SM7AED reports YO/DF2IAX/p in KN44 August 3 at 1249 and YO9IE August 15 at 0730 and August 29 at 1150 and 1805.

European Russia: SM7AED reports RA3TES August 29 at 0940, RA3YO August 29 at 1832 and August 30 at 0930, RU1A in KO48 August 29 at 0819 and August 30 at 1058, and UC2AA August 29 at 0816.

SM7AED passes along the following confirmed QSL route for RU1R and R3VHF. P O Box 73, 603000 Nizhny Novgorod, Russia.

G0DJA reports working RU1A in KO48 sometime in late August. 9H5EE reports working AI, RU1A on August 29. He believes this to be an extension of the previous operation by the members of UZ1AWT from St. Petersburg that operated from Primorsk in KP40 on the weekends between June 5 and July 31. The equipment in use then was an FT-726, a PA, and a 5 el Yagi. QSL via KC1WY, Nat Trumbull, 17 Church Street, Woods Hole, MA 02543, USA.

9H5EE passes along the following prefix changes for parts of the old USSR:

New Prefix	Country	Old Prefix
4J	Azerbaijan	UD
4L	Georgia	UF
EK	Armenia	UG
ER	Moldavia	UO
EU, EV, EW	Belarus	UC
EX	Kyrgyzstan	UM
EY	Tadzhikistan	UJ
EZ	Turkmenistan	UH
R, UA-UI, 4K	Russia	UA1, 3, 4, 6
UI-UM, UR-UZ		
EM, EO	Ukraine	UB
UK	Uzbekistan	UI
UN, UO, UP, UQ	Kazakhstan	UL

Scotland: SM7AED reports GM4ILS via aurora on August 4 at 1654, and GM4SEU/p and GM4IGS via meteors on August 11-12. He also reports GM0BWU August 26 at 1058, GM1PKN August 26 at 1148, GM4IGS August 26 at 1008, and GM4UPL August 26 at 1135.

Serbia: SM7AED reports 4N1SIX August 8 at 1900; YT1AU August 6 at 1332 and August 29 at 0845; YU1ABA August 7 at 0554, and by meteors August 11 at 1527 and August 12 at 1042, and August 25 at 1129; YU1EV August 25 at 0832; YU1FZ August 21 at 0927; YU1MW by meteors August 11 at 2251, and August 15 at 0730; and YU7AU August 29 at 0845. Arne, SM7AED, writes: "I do not know why YU2IQ (in

KN0400) still uses his old callsign, maybe he is a Croat living in Serbia. I will ask him next time I meet him on the air. I hope they soon can solve the mess down there. The smallest problem is the callsigns of amateurs."

Sicily: SM7AED reports IT9CHU August 25 at 1146 and IT9IPQ/IT9 August 29 at 0932.

Slovakia: SM7AED reports OM3CM August 12 at 1320 by Perseids meteors and August 29 at 1843 by Es and OM3OM August 29 at 1826.

Slovenia: SM7AED reports S51UF August 12 at 0652 by Perseids meteors; S52CO August 15 at 0755 and August 29 at 0945; and S57AC August 24 at 1429.

Spain: EH1AST, EH1QU, EH1EH, EH1YV, EH7BVH, and EH7DZI were into East Coast USA and Canada on August 8.

SM7AED reports EA3LL August 30 at 1800; EH1DDU and EH1DVY/p August 23 at 1140; EH1DKV/p August 23 at 1315; EH1EH August 14 at 1552; EH2LU, by meteors August 11 at 1842, and August 15 0730-0755; EH3AQJ August 9 at 1817; EH3AQJ/p, EH3KE, EH3LL, and EH7AH August 14 1800-2000; EH3BTZ August 15 at 1056; EH3CUU August 23 at 1134; EH3EHQ August 15 at 0740; EH3JA August 15 at 1110; EH3LL August 25 at 1205; EH5BZS/p in JM09 August 23 at 0823 & 1137; and EH7AH August 22 at 1240.

G4VXE mentions activity from some rare Spanish grid squares, EH3CCK/6 (JM19) and EH5BZS/p (JM09) being appreciated, but he doesn't say when (we presume sometime in August).

Sweden: SM7AED reports an auroral opening on August 4 0804 to SM0EKY, SM3EQY, and SM3JGG and a meteor backscatter QSO (beaming W) to SM3EQY August 12 0047.

9H5EE reports that SJ9WL, Kjell SM0OGX and Mike SM0TSE in JO69 were to have been QRV on 6m between September 3 and September 6 from Morokulien, which lies on the border between Sweden and Norway. They were to have been active on 50.155 so that Italian stations could work them.

Switzerland: SM7AED reports HB9 in August 9 at 1600 and a meteor scatter contact with HB9ASB August 12 at 0048. He also reports a meteor scatter contact with 4U1ITU August 11 at 2208.

Listed in JA1VOK's World VHF News in *Five Nine* was HB9AMZ's heard report for August 22, between 0845 and 1122: EH7AH, ES5DE, ES5MC, ES6PZ, ES0SIX/b, GI8FLQ, FM0NRT, I8YGS, IT9CHU, IT9LYF, LA2AB, OH1VR, OH1SIX/b, OH5NR, OY3JE, OY9JD, OZ4VV, OZ9ABX, OZ9AFN, SM1LPU, SM0KCR, SV9SIX/b, 9H1AA, 9H5EE.

United Nations (Geneva, Switzerland): 9H5EE reports that 4U1ITU was operated by Alberto, I0XGR, between August 9 and August 21, mostly during the evenings and weekends. He was using a TS690 (50W) and 5 el Yagi, and was worked on random meteors around 50.160 on both SSB and CW. QSL via I0XGR. 4U1ITU was operated between Friday August 20 1200 and Saturday August 21 1200 by a group from the Lissone region in Italy, and for this operation QSL via the operator's home-call or via the ARI/bureau.

Ukraine: SM7AED passes along the following QSL route for UL5OK in KN46, via UT5RP, Dimitriy Slyusarenko, Box 300, 270000 Odessa, Ukraine.

Wales: SM7AED reports meteor shower contacts with GW0GEI and GW3HBR/p August 12 at 0108 and 0030 respectively. He also reports GW4BZD at August 22 at 1153 and GW8ELR August 26 at 1905.

News of North America

Anguilla: 9H5EE reports that John, KA3DBN was QRV from VP2EBN between August 22 and August 30. He was equipped for 6m CW and SSB, but had to emphasize the WARC bands. QSL: via home call.

Canada: While monitoring 50.110 and typing up last month's newsletter, I heard only one non-local station, VE7BEE, August 18 between 0325 and 0350.

WB4WTC hrd VE3s August 9 at 0043 and worked VE4ZK August 10 at 2020. Tnx JA1VOK.

Cayman Is.: WB4WTC hrd ZF1DX July 28 at 0135. Tnx JA1VOK.

Cuba: WB4WTC worked CM2JG August 12 at 0207, and heard him August 18 at 2254. Tnx JA1VOK.

Dominican Republic: Bill, KE7CX, is looking for successful QSL routes for HI8W and HI8DAF.

WB4WTC reports hearing HI8DAF September 5 some time between 2028 and 2129. Tnx JA1VOK.

Greenland: Seppo, OX/OH1VR/p was expected to be QRV on 6m between late July and early August. QSL: OH1VR, Seppo Sisatto, Lansirinteenk 23, 33400 Tampere, Finland.

Haiti: WB4WTC reports hearing HH7PV August 2 at 1555, and hearing HH2PK September 5 some time between 2028 and 2129. Tnx JA1VOK.

Jamaica: WB4WTC reports hearing 6Y5IC August 2 at 1555. Tnx JA1VOK.

Mexico: Bill, KE7CX, in Hillsboro, OR (CN85) reports "XE2LQB in DL98 August 18 at 0100 and XE1AUM in DK79 August 18 at 0343 following an aurora the previous night. XE2LQB was 55, but XE1AUM was only 31; what is he running?" Bill is looking for QSL route for XE2LQB.

United States: We are saddened to report the passing of long-time VHF operator Dave Bostedor, Sr., K8WKZ, on August 1. From Joe Lynch, N6CL's VHF PLUS column in October 1993 *CQ magazine*: "This past summer Dave made his final grid square trip when he, accompanied by his wife, Pat, N8PYO; Dave Jr., N8NQS; and his wife, Linda; went to FN17 and FN18. The talk of the band was how consistent they were being heard into the States. Several hundred contacts were made and Dave had an extraordinarily good time.

On Friday, July 23, Dave went to the hospital for more tests. The doctor advised him that with chemotherapy he could live a couple of more months. Dave declined the additional medical treatment and went home to be with his family for the last time."

News of Oceania

Australia VK4 (Queensland): JA7WSZ reports VK4TL in QH32 July 27 at 1837. VK4s were into JA1/2/7 August 8 at 1530. JH0HQP reports VK4EJR and VK4WTN August 10 at 1528-1533. Tnx JR3HED.

JA1VOK indicates VK4DO, VK4JH, and VK4ABW were into JA5CMO August 22 between 0640 and 0700; VK4TL, VK4ABW, and VK4ZJR were into JA August 27 0920-1030; VK4TL was in August 28 0957-1040; and VK4FP was in September 4 0340-0350.

Australia VK6 (West Australia): JR3HED reports that VK6JQ in RH12 was into JA8RC July 30 at 1945 and JA1/2/7 August 1 at 1925.

French Oceania: Rene, FO5DR, observed the following Trans-Equatorial Propagation signals from the Hawaiian Islands during August: **6th**, 0520 Ch 2 TV video, 0550 KH6HME/b, 0620 Ch 3 & 4 TV video, out around 0715; **12th**, 0500 Ch 2, 0530 KH6HME/b & KH6HI, 0615 Ch 3, 4, & 5 video, out around 0700; **22nd**, 0615 KH6HME/b, KH6HI, Ch 2 & Ch 3 out around 0815; **23rd**, 0555 KH6HI, 0630 KH6HME/b, 0640 Ch 2, 0710 Ch 3, 0755 out.

Wake Is., Western Caroline Is: See DX-peditions.

Western Kiribati: Bill, KE7CX is looking for successful QSL route for T30BY, mentioning that the QTH published in the 1992 January 26 6m bulletin hasn't produced a reply. Editor's note--if this is a general problem, perhaps one of our readers would volunteer his services as QSL manager. On the other hand, even I have some cards yet unanswered for contacts two years old, and I'd hate to lose any 6m DX activity over (non)QSLing.

Mellish Reef, VK9: See DX-peditions.

Minami-Torishima Island: JR3HED reports JH1MAO/JD1 in QL64 was into JA4OEV/1 June 22 at 1145, and into JA June 23 at 1158, into JA0LSQ June 26 at 0823, and into JE3GUG June 28 at 1908.

Ogasawara: JR3HED reports JG1EIC/JD1 and JD1ADP into JA0-7 August 17 1845-1852.

Papua/New Guinea: P29CW was reported by JE3GUG and others July 2 2045-2100. Tnx JR3HED.

News of South America

Argentina: WB4WTC reports working LU6DLB and LU8EEM September 5 some time between 2028 and 2129. Tnx JA1VOK.

Beacon News

Australia: JA1VOK reports VK4RGG/b is on 50.058 with 6 W.

Crete: JA1VOK reports SV9SIX/b in KM25 is on 50.010 with 30 W ERP.

Estonia: ES0SIX has been QRV on 50.037 MHz since mid-August 1993, running 15 W out to a horizontal dipole antenna 20 m AGL pointed 100°/280°. The beacon is located on Muhu Island, Estonia in grid KO18po, and is tended by Albert, ES0CB. The beacon sends dots between IDs, which are spaced about 30 seconds.

The persons involved in getting this beacon together are: LA0BY, Stefan; SM0DFP, Per; SM0KAK, Lasse; SM0OUG, Arne; and SM3BEI, Lennart.

Lasse mentions that he has also delivered a 432MHz beacon to Estonia, where it will get a UUUF B QTH 120 m

ASL in KO18cw and run 50 W out. It is not QRV yet due to lack of an antenna, which he is soliciting. Tnx SM0KAK via KA3B.

SM7AED reports ES6SIX/b, in KO37mt, on 50.011.

France: F1MKY, Christian in JN343oq, operates an intermittent CW beacon on 50.089 MHz into a vertically-polarized Comet CX-701 (2.15 dBi) antenna. The message remains "FC1MKY JN33OQ" for a few weeks until reprogrammed as per the recent prefix changes in France.

Hong Kong: JA1VOK reports that the VS6SIX beacon has been off the air since July when the antenna was damaged by a typhoon.

Japan: JH7ZMA six meter beacon on 50.027 MHz with 50 W output changed antennas on August 9. The previous antenna was a CL6DX 6-element Yagi beamed south. The new antenna is a horizontally-polarized 5/8 λ stacked turnstiles; stacked cross-dipoles.

"K6STI's YO and MN program indicate that our new antenna has a gain of 7.0 dBd at an elevation angle of 8° (peak). Therefore stations to the south (VKs, P29s) should see approximately 8 dB less signal, while stations in other directions should see a dramatic increase in signal strengths."

The persons involved would appreciate receiving reception reports. They are: JH7DHS, JH7VEP, JH6DEA, JH6AVS, and JE1BMJ. The message was sent by JE1BMJ Han@JA1WOI.12,JNET1.JPN.AS and relayed by Arne, SM7AED.

Serbia: Arne, SM7AED, writes that 4N1SIX is placed in grid KN0400 as I understand. This is east of Belgrade in Serbia, Yugoslavia. The same grid is given by other YU1 stations.

South Africa: Carl, ZR1AFC announces: "Hi, fellow 6-meter enthusiasts. Since 18 June, 1993 our 6-meter beacon has been transmitting on 50.080 LSB (FSK). Power is 10 W into an Halo Antenna. Its identification is: ZS1 SLX JF96JC. It is situated near Stellenbosch, CP.ZAF.AF. HAVE YOU PERHAPS HEARD IT???? If so, please let us know the following: Your location, date, time, and signal strength. Your effort is appreciated. 73 de Carl ZR1AFC@ZS0STB.CP.ZAF.AF" Tnx SM7AED.

General: Have you perhaps heard our beacon? If so, please let us know--! Not only Carl, ZR1AFC, but I and the other beacon operators around the world would appreciate some feedback. It would be great shame if some beacons were to go QRT because "it's not worth the electricity bill transmitting on a 'dead' band!"

Indicators

JR3HED passes along the following TV signals that may be of use to others. The suffix V is used for Video Carriers, F for FM Audio. Australia: 46.170V, 46.240V, 46.250V, 51.670F. Malaysia: 53.740F, 53.750F, 53.760F. Malaysian TV indicators were heard by JE3GUG on August 3 1831 & 1950, August 6 1000, August 8 1340, and August 17 1742. Australian TV indicators were heard by JH0HQP August 10 at 1500-1525.

Contests

The Scandinavian activity contest will be held September 28, 1700-2100 UT, and 1800-2200 UT on October 26,

An OZ 50 MHz Group Open Region 1 contest will be held November 6 1400 UT to November 7 1400 UT.

DX-pedition News

Western Caroline Islands: JR3HED reports KC6IL (the JARL Kyoto ARC DX-pedition to Palau) into JA1/2/7 August 8 at 1645. JA1VOK reports that KC6IL and KC6LI worked 16 stations in JA1 & JA7 around 0800 on August 10. Was this the same opening?

Jan Mayen Is.: Terje, JX3EX in IQ50, continues 6m operation til sometime in October. QSL to LA5NM or bureau.

Mellish Reef, VK9: VK2BEX, VK2BJL, VK4CRR, K5VT, WA4DAN, G3MGV, P29DX, and V73C were on Mellish reef September 17-29. Six meter QRG is 50.120 and QSL to VK4CRR. Tnx SM7AED.

Mongolia: Bad luck for JT1/JE7RJZ (pg 3, August 1993 bulletin), JA1VOK writes that they worked no 6m stations. Operation was to have been August 24-31.

Romania: Emil, YO7VJ/p in KN13vt, is scheduled to leave October 5.

St. Peter & Paul Rocks: The Natal DX Group is scheduled to put PY0SK on 6m and other bands for three weeks sometime in Jan/Feb 1994.

Wake Island: We learned of this one from 9H5EE too late to do any good. The Cal Poly San Luis Obispo Amateur Radio Club went on a DXpedition to Wake Island, etc. which included 6m SSB and CW. "The operation dates and QTHs were as follows:

Hawaii (KH6)	Aug 30, Sept 10-12
Kwajalein (V73)	Aug 31
Wake Island (KH9)	Aug 31-Sept 10

The operators were Craig Gullickson KC6CEX, Javier Campos AH6MM, Craig Boyer AH9B, Chris Lee AB6EV, Kirk Fabrizio AH6ML, and Pat Guerin NH6UY. There were to be two fully operational stations complete with beams, amps, computers, and loads of candy bars. They were going to make a special effort to listen for propagation to Europe and the East Coast. Utilizing filters and proper antenna placement, they were going to try transmitting two signals on the same band to maximize QSOs in these needed areas."

Bob, K6QXY, remarked that he worked AH9B on the 10th on 20m, but that they **did** work into JA on 6m.

JA1VOK indicates he worked AH6MM/WH9 September 4 at 0211Z, and heard him again at 0230Z, and heard AH9B at 0740-0810Z. He mentions that this is the first 6m activity from Wake Is. since AH2BE/KH9 and N8BJQ/KH9 in late October 1989.

I talked with Craig, KC6CEX, before and after JA1VOK's report arrived. He indicated that they operated a breakable 6m beacon 24 hrs/day on Wake Island beamed alternately on Japan and the USA. On September 5 around 1100 they were broken by 3 or 4 JAs on CW. Signals were weak, and they were able to make a two-way QSO with only JH2COZ at 1108. They copied only two other calls; JH1ITK and JH2CTA, and they did not respond. Javier, AH6MM, says that they did not use his call on 6m at all, only AH9B and NH6UY. No other 6m stations were heard or worked at AH9 or V73.

EME News

K6QXY passes along the information that he and Jimmy, W6JKV, have worked JA1BK and I5MXX on 6m EME. The latter has also been worked by K6MYC. OZ5IQ is newly on 6m EME and has heard and been heard by K6QXY, but not worked.

The west coast EME gang will be running tests during the optimum weekend of each month prior to European moonset. The optimum EME weekend is usually when the moon is at its most northern declination.

The report from the European end (Tnx SM7AED): "Yesterday, September 13, there was a fine aurora down to southern Germany and England; **but** on September 12 at 15Z, SM7BAE heard K6QXY, W6JKV, and K6MYC off the moon. SM7BAE has one 9 element 12 m long Yagi antenna!

On September 13 I heard OZ5IQ keying RRRR.. to W6JKV at 1430Z and at 1500Z OOO report to K6MYC (I heard no Rs). At 1530Z, SM7BAE came home and heard K6MYC."

Equipment Notes

Down East Microwave (RR 1, Box 2310, Troy, ME 04987 USA, (207)948-3741) has come out with a new 50 MHz transverter kit, which consists of three sub-assembly kits which may be purchased separately. The complete kit of three (DEM 50-28K), which sells for \$295, converts 1 mW of 28 MHz RF to 19 linear watts at 50 MHz. The sub-assemblies are described below.

The DEM 50-28 main PC board assembly (\$175) is approx. 3.5" square. It is completely assembled with surface mount construction. There are adjustments for the LO frequency and the 50 MHz preamp only! All filters and amplifiers will never need adjustment. (Almost No-Tune!)

Every PC main board is test to the following specs.:

Approx. 100 mW output at 50 MHz with 0 dBm 28 MHz. IF drive. (400 mW of output may be obtained with +5 dBm IF) >17 dB conversion gain (50 MHz to 28 MHz.) with < 1 dB noise figure. All spurious emissions -50 dBC.

Features: Adjustable TX IF and RF IF attenuators; High level mixer (+17 dBm LO); GaAs FET front end (biased for high Intercept point); 5VDC TTL or PTT GND switching; Separate IFs and RFs inputs and outputs; Relay contacts for external TR switch or bias; Built-in power meter when used with M57735 hybrid; All necessary circuitry provided for M57735 hybrid.

The M57735 hybrid (\$80) was designed for: 19 Watts of maximum linear power; 12 VDC operation (Vcc and 9 VDC bias); 100 mW input drive to provide maximum power out at 12 VDC; 50Ω input and output.

The box and hardware kit (\$40) is set up for easy assembly of the complete transverter. Although it is not necessary for the operation of the transverter, it is recommended. The contents are as follows: 1 - Hammond 1590BB cast aluminum box; 1 - heat sink approx. 4.5" square; 4 - BNC panel jacks (UG 1094U); 3 - RCA panel jacks; 4 - fiber washers; 4-40 hardware for PC board installation; 6-32 hardware for hybrid installation; Copper strap; #20 solid wire; 3 - 1000 pf caps.